

Book review: The New Production of Knowledge - The Dynamics of Science and Research in Contemporary Societies, by Michael Gibbons, Camille Limoges, Helga Nowotny, Peter Scott Simon Schwartzman, Martin Trow. London, Sage Publications, 1994.

Zaheer Baber, *Contemporary Sociology*, 24, 6, Nov 1995.

Jointly authored by a team of distinguished scholars spanning a number of disciplines, *The New Production of Knowledge* maps changes in the mode of knowledge production and the global impact of such transformations. The key motif underlying the book's arguments is that the world is witnessing a dramatic shift both in the institutional context of knowledge production and in the kind of knowledge that is being produced. For heuristic purposes, Mode 1 is identified as "traditional knowledge" generated within a specific disciplinary, cognitive, and primarily academic context. Mode 2, on the other hand, represents knowledge generated outside academic institutions in broader, transdisciplinary social and economic contexts. The process of transition from Mode 1 to Mode 2 has been precipitated mainly by a dramatic expansion of higher education in the past few decades that created a surplus of highly skilled graduates who could not be absorbed into traditional academic settings. Instead of being reduced to a reserve army of surplus labor, the authors contend that most of them have either found work in private industries and laboratories or have founded their own enterprises, consultancies, and think tanks, etc. One consequence has been the proliferation of multiple sites of knowledge production; universities no longer have a monopoly on the certification of valid knowledge. Although the transition from Mode 1 to Mode 2 is not as yet complete, the authors contend that the process is well under way and is in fact "irreversible" (p. 11). Attempts to stall this process will not work, and the least social analysts can do is to understand the dynamics of this change with the aim of managing it in the future. The authors map certain key changes that are occurring as a consequence of the emergence of multiple sites of nonacademic knowledge production. In the first instance, knowledge in Mode 2 is produced primarily in the context of applications characterized by a problem-solving approach to specific issues, as opposed to a context governed largely by the interests of an academic community. Knowledge produced in Mode 2 is characterized by "transdisciplinarity," and solutions to problems generated are beyond the resources of practitioners within a single discipline. At the organizational level, Mode 2 knowledge production leads to a complex network of linkages between a number of subfields and heterogeneous sites, leading to further transmutation and reconfiguration of these subfields and sites. The new mode of knowledge production is also characterized by social accountability and reflexivity. The authors contend that contrary to what one might expect, working in the context of application increases the sensitivity of scientists and technologists to the broader implications of what they are doing, making them more reflexive and accountable to the growing public concern about the environment and other social issues. Finally, in addition to the standard procedures like

peer review, etc. adopted for evaluation and quality control of knowledge, Mode 2 incorporates a diverse range of criteria that reflect social, economic, and political interests. Thus, criteria like competitiveness in the market, cost-effectiveness et al. become as important as peer review based on purely intellectual and disciplinary considerations. Although the focus of the book is primarily on scientific and technological knowledge, the humanities and social sciences are also discussed in a brief chapter.

The authors succeed in their limited aim of sketching out, in very large strokes, the emerging trends in knowledge production and their implications for future society. The macro focus of the book is a welcome change from the micro obsession of most sociologists of science, who have pretty much deconstructed institutions and even scientific knowledge out of existence. However, despite brief discussions of the inequalities emerging as a consequence of these changes, the authors view the process as fairly benign. After all, there are many associations and support groups of highly qualified scientists who, after enduring the ritual of successive postdoc positions, have given up hope of stable employment. The situation in the social sciences is only marginally better, and it is worse still for those trained in the humanities. Whether those who are highly skilled but permanently underemployed have a better chance in Mode 2 or whether they will continue to swell the ranks of the reserve army of the under-employed remains to be seen.